

FENELON FALLS

**water
treatment
plant**

1968

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ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

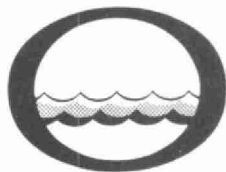
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Water management in Ontario

Ontario
Water Resources
Commission

135 St. Clair Ave. W.,
Toronto 7
Ontario


We are pleased to present you with the Operating Summary for the water treatment facilities operated for you during 1968.

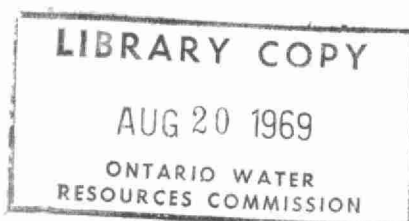
Both the financial and technical information presented should be of assistance to your present and future planning in this important phase of municipal activity.

A new format has been devised to allow greater readability with equally detailed content. We trust that this will meet with your approval.

Our staff wish to express their appreciation for your co-operation throughout the year.


D. S. Caverly,
General Manager.


D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.





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FENELON FALLS
water treatment plant

operated for

THE VILLAGE OF FENELON FALLS

by the

ONTARIO WATER RESOURCES COMMISSION

1968 ANNUAL OPERATING SUMMARY

FOREWORD

● This operating summary outlines the project's technical capabilities and financial status in 1968. Such information mirrors past and present performance, but a major intention is to anticipate the future -- to solve problems before they occur.

The new format in which this year's data are presented is designed to offer a higher level of readability than in the past, without a corresponding decrease in compactness, accuracy and detail.

Although your Regional Operations Engineer carries the major responsibility for the contents of the report, those involved in its preparation are attached to several Commission sections and divisions. The statistics section of the Division of Plant Operations compiled the information for the graphs and charts. The draughting section of the Division of Sanitary Engineering drew the graphs. The Division of Finance provided all cost data.

Only the close co-operation of these departments allowed the publication of this summary.

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'68 REVIEW

The operating cost was \$9,072.02. The cost per thousand gallons of raw water treated was 19 cents compared to 17 cents in 1967. These costs do not include power, which is paid for by the municipality.

The total flow was 48.78 million gallons, or an average of 134,000 gallons per day for the year. This was an increase of nine percent over the 1967 flow. The design capacity of 180,000 gallons per day was exceeded approximately 22 percent of the time.

A total of 1,034 pounds of chlorine was used during the year at an average dosage of 2.1 mg/l. The bacteriological sampling program indicated that satisfactory disinfection was maintained during the year. The water quality was above the OWRC objective for colour and slightly above for turbidity.

PROJECT COSTS

NET CAPITAL COST (Final)	\$303,660.14
DEDUCT - Payments from Municipalities	<u>2,531.00</u>
Long Term Debt to OWRC	<u>\$301,129.14</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1968	\$ <u>43,436.81</u>
Net Operating	\$ 9,072.02
Debt Retirement	6,077.00
Reserve	1,632.93
Interest Charged	16,906.41
	<u> </u>
TOTAL	\$ <u>33,688.36</u>

RESERVE ACCOUNT

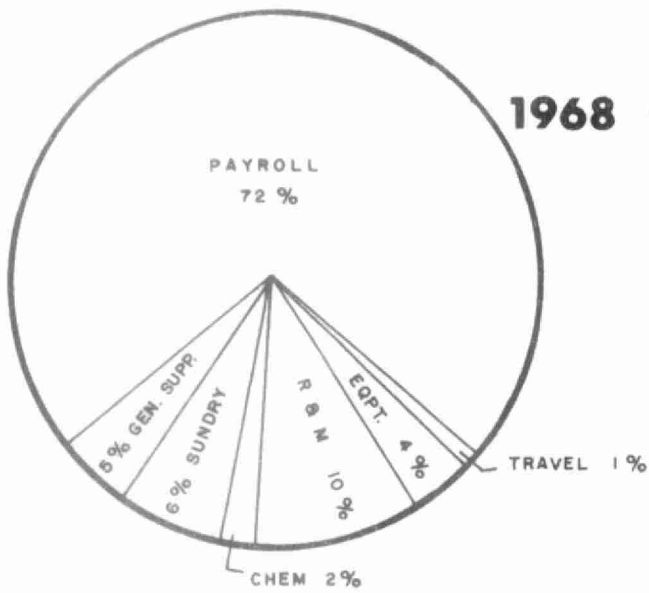
Balance at January 1, 1968	\$ 11,459.88
Deposited by Municipality	1,632.93
Interest Earned	<u>714.65</u>
	\$ 13,807.46
Less Expenditures	<u>-</u>
Balance at December 31, 1968	\$ <u>13,807.46</u>

Monthly Operating Costs

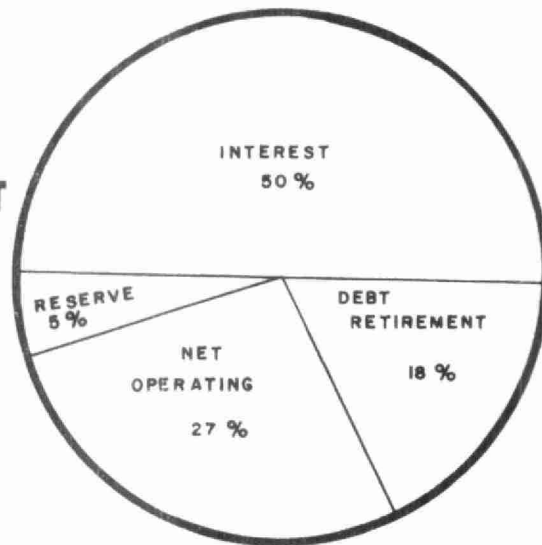
MONTH	TOTAL	PAYROLL	CASUAL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY	TRAVEL
JAN	497.08	383.83	33.94	-	-	-	9.75	-	51.07	18.49	-
FEB	873.08	383.83	10.00	-	-	106.13	16.00	-	338.10	19.02	-
MAR	762.82	635.94	-	-	-	-	86.65	-	-	40.23	-
APRIL	538.44	383.83	5.00	-	-	-	43.80	-	(16.00)	121.81	-
MAY	503.37	383.83	83.57	-	-	-	23.46	-	-	12.51	-
JUNE	605.31	383.83	211.68	-	-	-	7.80	-	-	2.00	-
JULY	961.46	403.85	32.19	-	-	-	36.45	296.68	76.20	116.09	-
AUG	641.00	580.85	-	-	-	-	7.80	-	34.65	17.70	-
SEPT	918.25	639.01	10.00	-	-	-	35.84	-	203.92	29.48	-
OCT	581.58	489.78	5.00	-	-	-	49.72	-	-	37.08	-
NOV	900.56	444.39	56.59	-	-	-	67.58	-	-	116.45	215.65
DEC	1289.07	972.57	-	-	-	106.13	33.24	27.09	226.65	56.04	(132.65)
TOTAL	9072.02	6085.44	447.97	-	-	212.26	418.09	323.77	914.59	586.90	83.00

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1968 OPERATING COSTS



TOTAL ANNUAL COST



Yearly Operating Costs

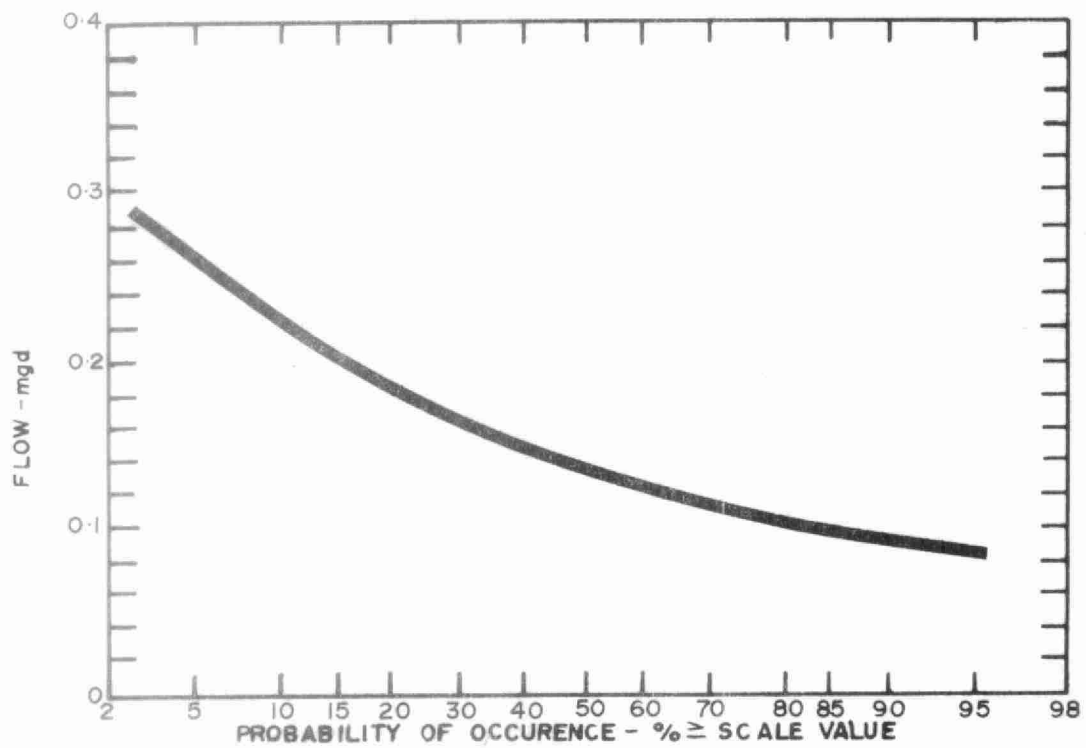
YEAR	M G. TREATED	TOTAL COST	COST PER THOUSAND GALLONS
1964	27,881	\$6,258.23	\$0.22
1965	40,728	7,884.37	0.19
1966	34,360	7,241.30	0.16
1967	44,771	7,527.22	0.17
1968	48,775	9,072.02	0.19

Process Data

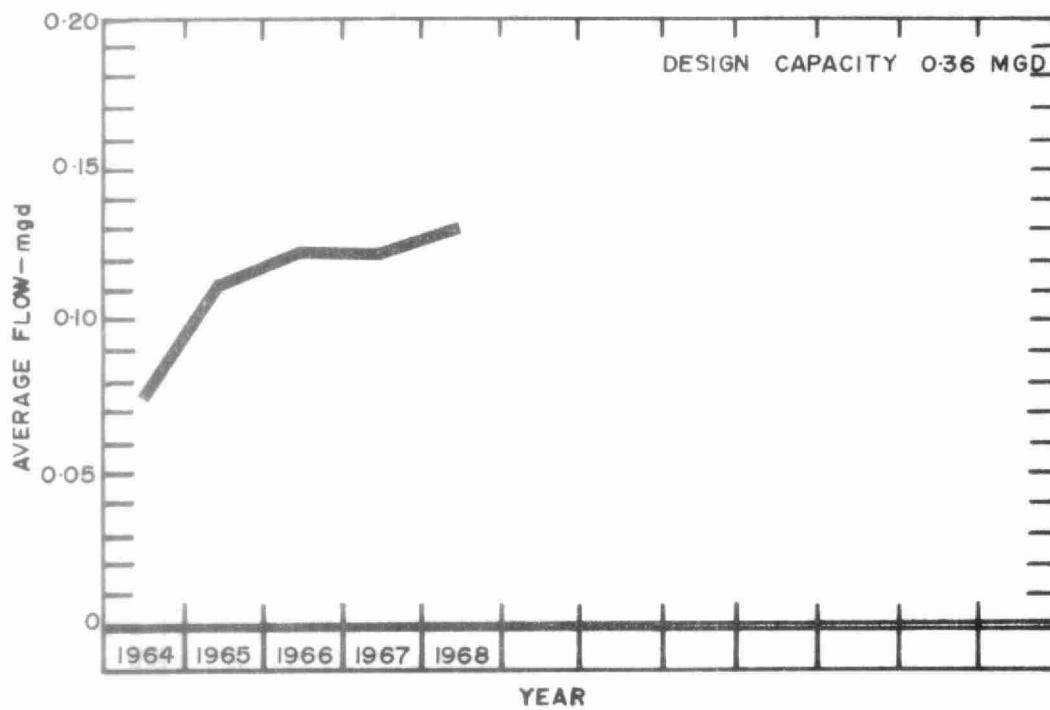
The plant flow was 48.78 million gallons during 1968, an increase of 4.01 million gallons over 1967. The average daily flow for the year was 134,000 gallons per day. During July and August, the average daily flows were 240,000 and 200,000 gallons per day respectively. It is anticipated that lawn watering restrictions will reduce the flows in 1969.

The original plant capacity of 130,000 gallons per day was increased in 1965 to 180,000 with the installation of a pressure-sensing telemetering system and the automatic sequencing of the service pumps.

From the probability of flow curve, it can be seen that the design flow of 180,000 gallons per day was exceeded approximately 22 percent of the time, compared to nine percent in 1967 and 17 percent in 1966. The increase was due to dry summer weather. It should be noted that when the capacity of the service pumps is exceeded, the fire pump, which bypasses the filters, supplements the service pumps.



FLOWS



FLOW DATA

Month	Total Flow (MG)	Avg. Daily Flow (MGD)	Max. Daily Flow (MG)	Min Daily Flow (MG)
January	3.19	0.10	0.12	0.09
February	2.87	0.10	0.12	0.09
March	3.23	0.10	0.12	0.08
April	2.83	0.07	0.11	0.08
May	3.52	0.11	0.17	0.08
June	4.49	0.15	0.28	0.10
July	7.53	0.24	0.38	0.12
August	6.08	0.20	0.25	0.15
September	4.91	0.16	0.23	0.10
October	4.90	0.16	0.19	0.08
November	3.06	0.10	0.12	0.07
December	2.17	0.08	0.10	0.03
Total	48.78	-	-	-
Average	4.06	0.13	-	-

CHEMICAL ANALYSIS

CHEMICAL PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	No. of Samples	Avg.	Max.	Min.	No. of Samples	Avg.	Max.	Min.	
HARDNESS mg/l CaCO_3	7	62	74	54	8	64	76	56	80-100
ALKALINITY mg/l CaCO_3	7	49	59	43	8	46	54	40	30-100
IRON mg/l Fe	7	0.7	0.27	0.14	8	0.25	0.90	0.09	< 0.3
COLOUR Units	6	22	35	10	7	< 15	25	5	< 5
CHLORIDE mg/l Cl	7	8	36	2	8	5	6	3	< 250
TURBIDITY JTU	5	2.1	2.9	1.1	6	1.6	2.3	1.0	< 1.0

COMMENTS

The colour of the treated water averaged less than 15 Hazen units, but was above the OWRC objective of five Hazen units. Turbidity in the treated water averaged 1.6 units, slightly more than above the OWRC objective of 1.0 unit. A pilot program to find out what has to be done to reduce the colour and turbidity will be carried out in 1969.

CHLORINATION AND DISINFECTION

MONTH	COLIFORM				CHLORINE		
	RAW WATER		TREATED WATER		Total Used (lbs.)	Prechlor. Dosage mg/l	Postchlor. Dosage mg/l
	No. of Samples Taken	Avg. Density No. /100ml	No. of Samples Taken	No. with Coliform 0/100 ml			
January	2	19	5	0	67	2.1	-
February	3	27	4	0	58	2.0	-
March	1	4	1	0	65	2.0	-
April	2	4	8	0	62	2.2	-
May	1	2	3	0	83	2.4	-
June	4	32	8	0	107	2.4	-
July	2	61	6	0	159	2.1	-
August	2	75	10	0	126	2.1	-
September	2	1680	14	0	80	1.6	-
October	1	18	3	0	77	1.6	-
November	2	11	14	0	81	2.6	-
December	1	116	3	0	69	3.2	-
TOTAL	-	-	-	-	1034	-	-
AVERAGE	2	171	7	0	86	2.1	-

COMMENTS

A total of 1,034 lbs. of chlorine was used. An average dosage of 2.1 mg/l of chlorine was required to achieve a residual of 0.5 mg/l in the treated water. Bacteriological samples taken at the plant and at various locations in the distribution system indicated that adequate disinfection was achieved during 1968.

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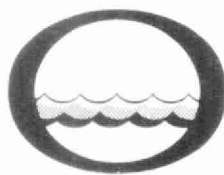
CONCLUSIONS

The plant design capacity was exceeded about 22 percent of the time. The high flows occurred from June to October.

The operation produced a safe and reasonably good quality of water which was above the OWRC objective for colour and turbidity during the year. During high flows some deterioration of the quality of the water occurs due to bypassing of the filters.

A study of the present and future water requirements of the Village is presently being carried out by the consulting firm of Totten, Sims & Hubicki.

Water usage restrictions have been recommended for the high flow periods in the summer, and they will be implemented in 1969.



Water management in Ontario